IRAC Susceptibility Test Methods Series

Method No: 010

***Version: 3** (June 2009)*

Details:

Method:	No. 010 (Formally Method No 10a)	 *Photograph Courtesy of: Jack T. Reed, Mississippi State University*
Status:	Approved	
Species:	*Frankliniella occidentalis*	
Species Stage	adults	
Product Class:	spinosad, acephate, acrinathrin, chlorfenapyr, chlorpyrifos-methyl, deltamethrin, endosulfan, fenpropathrin, formetanate, methiocarb	
Comments: None		

Description:

Materials:
Plastic 30-ml Medi cups and lids or similar vials with closure, pods of French, haricot or green beans, aspirator/pooter, 200-ml glass beakers, six 250-ml measuring cylinders and pipette for dilution of formulations, wetter (Tween 20 or equivalent), Vaseline or liquid paraffin, mesh, fine sable brush, hand lens (minimum 10x) or binocular microscope, max./minimum thermometer.

Sampling:
Collect adult thrips from the test locality by sampling flowers and shaking them into a clean plastic bag to dislodge the thrips. Maintain thrips in a cool place (e.g. cooler box) to reduce activity. Adult thrips may be collected and transferred from the bag using an aspirator. Use only healthy live thrips for bioassay.

Method:
a) Cut bean pods into 20mm length sections and seal the cut ends with Vaseline or liquid paraffin. This prevents thrips from hiding in the cracks of the cut ends and the bean sections from drying out.

b) Prepare test solutions by dilution of formulations in distilled water containing 0.005% Triton X-100, Tween 20 or equivalent emulsifier to act as a supplementary wetting agent at very low insecticide concentrations. Formulations should be pre-mixed at a high concentration first to ensure the creation of a stable formulation before dilution to the recommended test concentrations. Adequate wetting of plant surfaces may be achieved by adding one drop of wetting agent to each 100ml of test solution.

(c) Starting with the control (water/wetter only) progress from low to high concentrations. Pour 150-ml of test solution into a 200-ml beaker, immerse the bean sections for 30s, constantly agitating the solution to ensure adequate contact.

(d) After immersion, place the dipped bean sections in a warm dry area on a raised mesh surface to dry. When dry, place the treated bean sections in labelled Medi cup vials, one per vial. Use a minimum of five replicates per treatment.

(e) Tap approximately 20 adult thrips into each vial and seal the lid.

(f) Store the vials in a warm humid area (25°C/70%RH) for 24h, avoiding exposure to direct sunlight for the requisite period.

(g) Using a hand lens or binocular microscope assess mortality after 24h. Use a paintbrush to stimulate individual thrips, recording those that are incapacitated or fail to show any signs of movement as 'dead'. Record the total number of thrips and the number of dead thrips per vial and enter onto the data sheet.

(h) Express the results as percentage mortality and correct for untreated mortality using Abbott's formula. Untreated mortality and other relevant test information should be quoted.

Percautions & Notes:

Ideally, fresh solutions should be prepared for each bioassay using a premixing procedure that ensures formulation integrity. If material is limited, stock solutions can be stored in a refrigerator for a period of a few days and fresh test solutions prepared on a daily basis.

References & Acknowledgements:

None